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AMERGN.016C1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Bell	) Group Art Unit: 3744
Assignee	:	AMERIGON, INC.	)
Appl. No.	:	09/428,018	)
Filed	:	October 27, 1999	)
For	:	THERMOELECTRIC HEAT EXCHANGER	)
Examiner	:	William C. Doerrler	)

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on

October 11, 2000
(Date)

Stephen C. Jensen, Reg. No. 35,556

DECLARATION OF LON E. BELL UNDER 37 C.F.R. § 1.132

I, Lon E. Bell, having personal knowledge of the facts set forth herein, hereby declare as follows:

1. I am the inventor of the subject matter disclosed in the above captioned patent application.

2. I have worked in the design and engineering of heating and cooling systems for over eight (8) years. I hold a Ph.D. in mechanical engineering from the California Institute of Technology.

3. I am aware that certain claims in the above-captioned patent application have been rejected because the Examiner believes that it would have been obvious for one of ordinary skill in the art to modify the rotary heat exchanger disclosed in Pietsch U.S Patent No. 3,019,609 by forming the heat transfer surfaces of the Pietsch device as folds of a thermally conductive material, disclosed in Quisenberry et al. U.S. Patent No. 5,561,981. I have reviewed the Pietsch and Quisenberry patents.

4. Making a rotary heat exchanger from folds of a thermally conductive material would not be obvious in view of these references because it does not simply involve configuring the heat

exchanger of Quisenberry in a circular configuration. To my knowledge, no other fan or blower has been constructed of a folded thermally conductive material so as to facilitate heating or cooling the air handled by the fan. I believe that due to the technical complexities involved in making such a fan, one of ordinary skill in the field would not consider it feasible. For example, the dimensions of the thermally conductive material itself, as well the inner and outer radii R1 and R2 (see Figure 5) must be carefully selected to produce a fan that is aerodynamically effective. That is, at R1 the fan must have openings between the blades of sufficient size to permit air to flow centrifugally from the center to the outer perimeter of the fan. If R1 is too small these openings will be of insufficient size to permit the needed volume of airflow. A similar result will obtain if the spacing between the folds of thermally conductive material is too narrow; when formed into an annular fan the inner openings will contract to an insufficient size or close off completely. Furthermore, improper sizing of the fan material can cause excessive elongation of the material at the outer edge of the completed fan. When this occurs the material tends to unfold or flatten, reducing the volume of air that the fan can supply at a given speed. In sum, there is a reason Quisenberry is not in a circle. The folds make it difficult to obtain the outer versus inner radii requirements because the folds are the same width along the fin.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: 22 SEPT 2K

By: Lon E. Bell
Dr. Lon E. Bell

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